RMF SYSTEMS

PURE POWER

CONTAMINATION
MONITORING SENSOR (CMS)

Contamination Monitoring Sensor

SPECIFICATION

LED Based Light Extinction Automatic Optical Particle Counter

Analysis Range

ISO 4406:1999 code 0 to 25

NAS 1638 Class 00 to 12

AS4059 Rev.E. Table 2

Sizes A-F: 000 to 12

(lower Limits Test Time dependent)

Particle Sizing

4,6,14,21,25,38,50,70 μm(c) to revised ISO 4406 Standard

THE CMS IN-LINE CONTAMINATION MONITOR AUTOMATICALLY MEASURES AND DISPLAYS PARTICULATE CONTAMINATION, MOISTURE AND TEMPERATURE LEVELS IN VARIOUS HYDRAULIC FLUIDS. IT IS DESIGNED SPECIFICALLY TO BE MOUNTED DIRECTLY TO SYSTEMS, WHERE ONGOING MEASUREMENT OR ANALYSIS IS REQUIRED, AND WHERE SPACE AND COSTS ARE LIMITED.

CMS WATER EN TEMPERATURE SENSOR

The water sensor option measures water content using a capacitive RH (relative humidity) sensor. The results are expressed as percentage saturation. 100% RH corresponds to the point at which free water exists in the fluid, i.e. the fluid is no longer able to hold the water in a dissolved solution. Saturation point is depending on the medium temperature. For that reason the temperature is measured too.

SOFTWARE

All CMS units are supplied with software to download automatically new results as they are generated, provided the test is done while being directly controlled by the software. Or alternatively historical results can be downloaded form the CMS's inbuilt memory. The CMS memory has space for around 4000 log entries, when full, the oldest log entry is overwritten.

► Which test are logged, and when, are determined by the log settings

► Each log entry is time-stamped and contains the CMS serial number, so that it can be identified later.

FEATURES

▶ Measures and displays the international standard formats ISO 4406:1999, NAS 1638, AS 4059E and ISO 11218

▶ 8 Channels solid contamination measurement

▶ Moisture (RH) & Temperature option

▶ Inline to 400 bar

▶ 9-36 Volt DC

▶ Available with large backlit display and keypad

▶ Multicolour LED status alarms

▶ Programmable test times

▶ Manual/ Auto operation

▶ Programmable alarm relays

▶ PC/ PLC Operation

▶ Windows based software included

▶ RS 485 communication standard

▶ Manual, automatic and remote control flexibility

▶ Data logging and 4000 test result memory

CMS ALARM RELAY STATUS LED

All CMS versions have a multicolour indicator on the front panel, which is used to indicate the status or alarm state. The alarm thresholds can be set from the supplied software via the serial interfaces.

🟢 Green indicates that the test results passed, i.e. none of the alarm thresholds were exceeded.

🟡 Yellow indicates that the lower cleanliness limit was exceeded, but not the upper one.

🔴 Red indicates that the upper cleanliness limit was exceeded.

🔵 Blue indicates that the upper water content limit was exceeded.

🔴🔵 Red and blue alternating indicates both cleanliness and water content upper limits exceeded.

🟣 Pink indicates that the upper temperature limit was exceeded.

INSTALLATION

The CMS must be in a vertical orientation, with the oil flowing upwards through it.

Related Products

CMS "USB-I" CONNECTOR

This is a ready-made solution for easily connecting a PC/ Laptop to the CMS. It comprises of a USB:RS485 interface with a terminal block pre-wired to connect directly to the CMS. An extra terminal block is provided for any customer wanting to wire to external devices through two solid state relays. An external DC adapter can be used to power the complete system, or if the computer is always connected during use, power can be taken directly from the USB cable. Powered PC / Laptops only.

CMS-RDU

The CMS-RDU is a separate product that is used to remotely monitor or control an CMS when the CMS is out of reach in a location unsuitable for viewing.
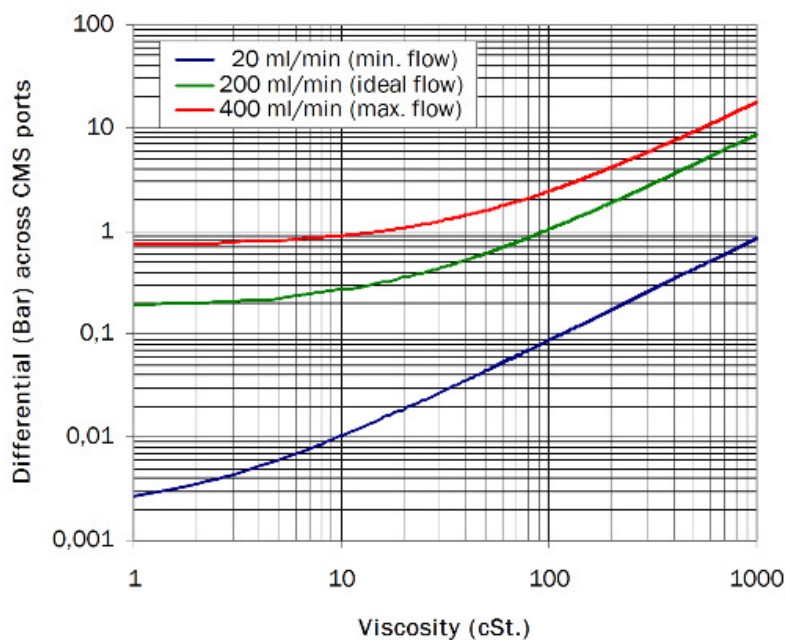
CMS-FC1

A pressure compensated flow control valve specifically designed to fit the CMS. This may be needed if the application produces an oil flow greater than 400ml/min. The CMS-FC1 is supplied with adaptors which enable the valve to be fitted to the CMS. The valve outlet port has a minimess fitting installed as a standard option.

Contamination Monitoring Sensor

TECHNICAL DATA SHEET

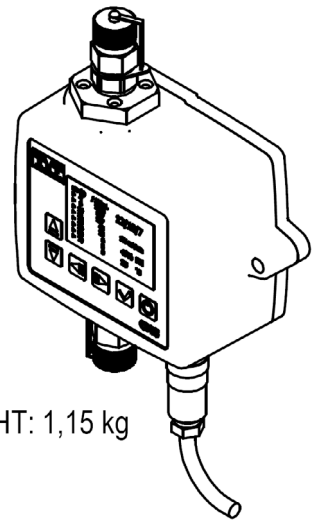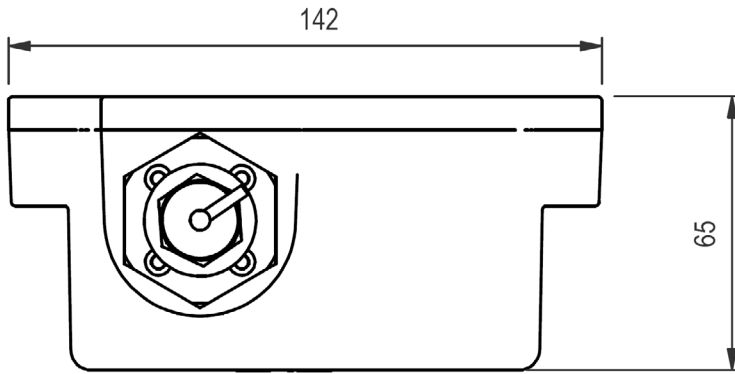| PRODUCT DETAILS	
Formats	ISO 4406:1999, NAS 1638, ES4059E Table 2, AS4059E Table 1, ISO 11218
Accuracy	± 1/2 code on the ISO 4406 standard, across range ± 1 code
Calibration	Each unit individually calibrated with ISO Medium Test Dust (MTD) based on ISO 11171 (1999) on equipment certified by IFTS.
Hydraulic fluid compatibility	Mineral oil & petroleum based fluids (consult RMF Systems for other fluids)
Flow rate	20-400 ml/minute
Viscosity range	to 1000 centistokes
Fluid temperature	-25 °C to +80 °C
Pressure max	400 bar
Electrical supply	Voltage 9 - 36V DC
Seal material	Viton (FPM)
Test time	Adjustable 10 - 3600 seconds, factory set to 120 seconds
Moisture sensing	% RH (Relative Humidity) ±3%
Temperature measurement	±3 °C
Flow rate measurement	Indication only
Data storage	4000 tests
Communications port	RS 485
Ambient temperature	80 °C or 55 °C (K version)
IP rating	IP 65/67 versatile
Physical dimensions	117(H) x 142(W) x 65(D)mm
Fixing holes	Centers 126mm apart
	Diameter 6.9mm (for M6)
Weight	1.15 kg

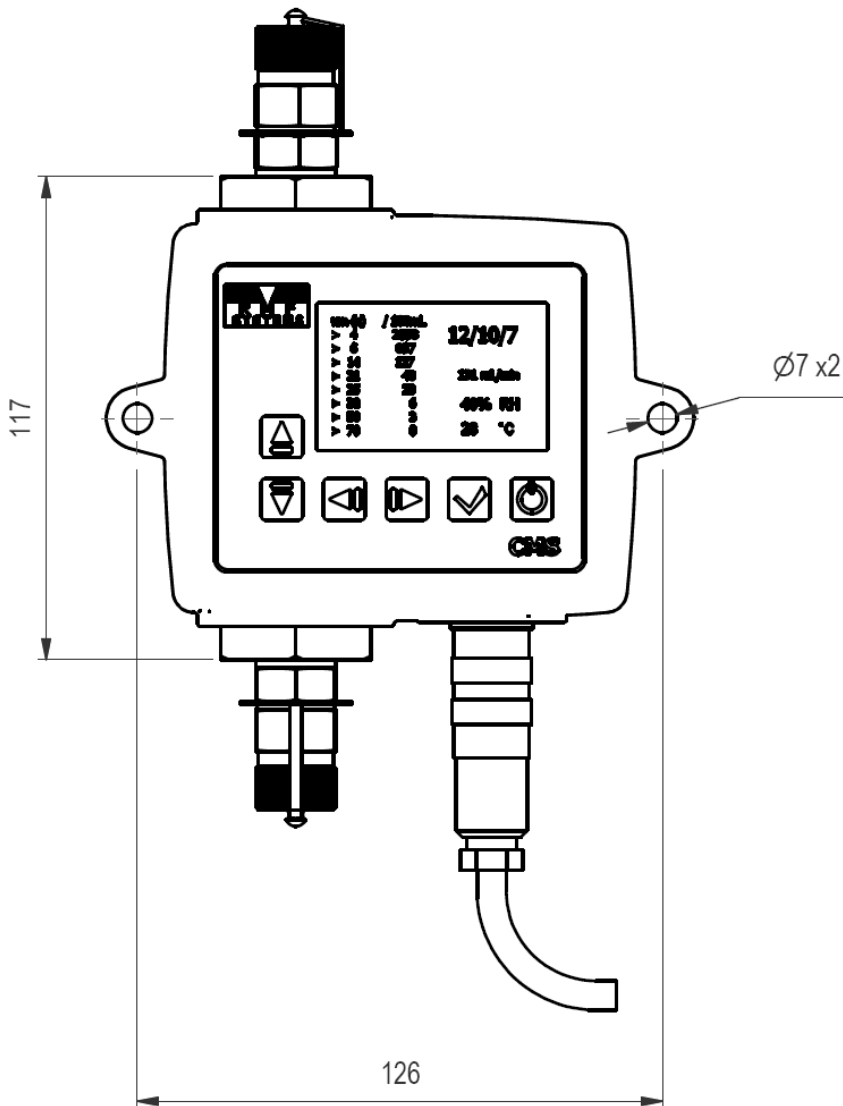| Supply current	12V	24V	36V
Basic unit	70mA	40mA	30mA
With keyboard	150mA	80mA	60mA

WARRANTY AND RECALIBRATION

The CMS is guaranteed for 12 months from date of receipt. The CMS is recommended to be recalibrated every 12 months. Return to RMF Systems for recalibration. As a policy of continual improvement, we reserve the right to alter the specification without prior notice.

Contamination Monitoring Sensor

142

65

117

126

Ø7 x2

12/10/7

WEIGHT: 1,15 kg

Contamination Monitoring Sensor

ORDERING CODE

YOUR CMS ORDERING CODE						
TABLE 1	TABLE 2	TABLE 3	TABLE 4	TABLE 5	TABLE 6	TABLE 7
CMS				R		

TABLE 1 - BASIC CONFIGURATION	CODE
Contamination Monitoring System	CMS

TABLE 2 - SENSOR OPTIONS	CODE
Moisture sensor option (mineral oil only)	W
No sensor option	0

TABLE 3 - FLUID COMPATIBILITY	CODE
Mineral fluid compatibility	M
WITH ANODISED OUTER CASE (NOT AVAILABLE WITH WATER SENSOR)	
Offshore and selected water based fluids	N
Phosphate ester and aggressive fluids	S

TABLE 4 - KEYBOARD AND DISPLAY	CODE
6 key keypad and 128 x 64 pixel back lit graphical display	K
No keypad and display	0

TABLE 5 - RELAYS	CODE
Two fully customisable "alarm" relay outputs to set upper and lower limits for the test results and indicates these via a "multicolour" front panel LED indicator and/or remote devices.	R

TABLE 6 - PORT OPTIONS	CODE
Test point M16 x 2 (standard)	G1
1/8" BSP	G2
1/4" BSP	G3

TABLE 7 - EXTRA OPTIONS	CODE
Flow control valve assembled	FC1
ATEX ZONE II CE II 3 G Ex nR IIB T6 X	AZ2

RELATED PRODUCTS - TO BE ORDERED SEPERATELY	CODE
CMS remote display unit with keypad (same port size as CMS unit)	CMS-RDU
CMS to PC USB connector unit	CMS-USBi

We're Here To Help You

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RMF SYSTEMS

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